

## The Orbits of the Recently Discovered Jovian and Saturnian Satellites

R.A.Jacobson (JPL/Caltech)

In the past year 10 new outer Jovian satellites (Sheppard *et al.*, IAUC 7555) and 12 new outer Saturnian satellites (Gladman *et al.*, Nature to appear) have been discovered. In addition, one previously lost outer Jovian satellite has been recovered (Marsden & Williams IAUC 7525). I have fit numerical integrations of the 23 satellites to all available observations. The integrations include the gravitational effects of the Sun, Jupiter, Saturn, Uranus, and Neptune with the solar GM augmented by the GMs of the inner planets. Also included are the perturbations due to the Galilean satellites on the Jovians and Titan on the Saturnians.

I computed mean orbital elements for each satellite by fitting a precessing ellipse model to a corresponding 1000 year integration. This procedure yields the secular rates of the periapsis longitude and the longitude of the node which are of interest in the study of the Kozai resonance.

Descriptive elements for the satellites are available at the JPL solar system dynamics WWW site (<http://ssd.jpl.nasa.gov/>) and ephemerides are available electronically from the JPL Horizons on-line solar system data and ephemeris computation service.